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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/589,569

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EXAMINER

PATEL, ISHWARBHAI B

ART UNIT

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2841

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/589,569	Applicant(s) FAZAKAS, ANDRAS	
	Examiner Ishwar (I. B.) Patel	Art Unit 2841	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 August 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to amendment filed on August 11, 2008.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lynch (US Patent No. 4,001,490) in view of Steigerwalt (US Patent No. 2,912,745).

Regarding claim 1, Lynch in figure 6 discloses a soldering nest provided in a bus bar (10) made entirely of a good electrical and heat-conducting material (made of metal, column 1. line 45-50), the bus bar having an aperture (15) for the introduction of a terminal lead (20) to be soldered there into, and the introduction of the terminal lead may be effected from a first surface plane of the bus bar and soldering may be effected from a second (see figure), opposite surface plane of the bus bar.

Lynch does not disclose the aperture is formed by a conical bore which is perpendicular or approximately perpendicular to the surface plane of the bus bar; the apex of the conical bore is oriented toward the first surface plane of the bus bar, and the conical bore terminates in a circular aperture whose diameter is slightly greater than the diameter of the terminal lead and the cone angle is 30 degree.

Steigerwalt in figure 1 and 2 discloses a soldering nest provided in a bus bar (2), the bus bar having an aperture (6, with 3) for the introduction of a terminal lead (4) to be soldered there into, and the introduction of the terminal lead may be effected from a first surface plane of the bus bar and soldering may be effected from a second (see figure), opposite surface plane of the bus bar, with the formed by a conical bore (see figure 2) which is perpendicular or approximately perpendicular to the surface plane of the bus bar; the apex of the conical bore is oriented toward the first surface plane of the bus bar, and the conical bore terminates in a circular aperture (3) whose diameter is slightly greater than the diameter of the terminal lead (see figure).

Forming the aperture in the conical form will facilitate better solder joint of the terminal to the bus bar.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the bus bar of Lynch with the aperture formed by a conical bore which is perpendicular or approximately perpendicular to the surface plane of the bus bar; the apex of the conical bore is oriented toward the first surface plane of the bus bar, and the conical bore terminates in a circular aperture whose diameter is slightly greater than the diameter of the terminal lead, as taught by Steigerwalt in order to have better solder connection.

Regarding the limitation cone angle being at least 30 degree, though the modified board of Lynch does not disclose the cone angle being at least 30 degree, Steigerwalt recites that conical bore is provided to receive extra solder to improve the soldered connection (column 1, line 25-30).

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Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the structure of Lynch with the cone angle of the hole at least about 30 degree, in order to improve the solder connection.

Further, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claim 2, the modified structure of Lynch further discloses that the cone angle is between 50 degree and 90 degree as applied to claim 1 above.

Regarding claim 3, the modified structure of Lynch further discloses the terminal lead is part of a semiconductor device (Steigerwalt, 5a, column 1, line 45-48. Also, the terminal 20 of Lynch is a terminal connected to a printed wiring board and the printed wiring boards are known to be used for mounting a semiconductor device, it is reasonable to consider the terminal is a part of semiconductor device).

Regarding claim 4, the modified structure of Lynch further discloses the bus bar consist of metal (Lynch, column 1, line 45-50).

Regarding claim 5, the modified structure of Lynch discloses all the features of the claimed invention as applied to claim 4 above including the bus bar is made of metal but does not explicitly disclose the metal is copper. However, the use of copper in the

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art is old and known due to its better electrical and thermal conductivity and commercially availability.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the modified structure of Lynch with the bus bar made of copper, as is old and known in the art having better electrical and thermal conductivity.

4. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Adachi (US Patent No. 5,065,283) in view of Steigerwalt (US Patent No. 2,912,745).

Regarding claim 1, Adachi in figure 2 discloses a soldering nest provided in a bus bar (1) made entirely of a good electrical and heat-conducting material (copper, column 1, line 15-20, obvious as the embodiment of figure 2 is a variation of the bus bar shown in the embodiment of figure 1), the bus bar having an aperture (7) for the introduction of a terminal lead (42) to be soldered there into, and the introduction of the terminal lead may be effected from a first surface plane of the bus bar and soldering may be effected from a second, opposite surface plane of the bus bar (column 2, line –10).

Adachi does not disclose the aperture is formed by a conical bore which is perpendicular or approximately perpendicular to the surface plane of the bus bar; the apex of the conical bore is oriented toward the first surface plane of the bus bar, and the conical bore terminates in a circular aperture whose diameter is slightly greater than the diameter of the terminal lead and the cone angle is 30 degree.

Steigerwalt in figure 1 and 2 discloses a soldering nest provided in a bus bar (2), the bus bar having an aperture (6, with 3) for the introduction of a terminal lead (4) to be soldered there into, and the introduction of the terminal lead may be effected from a first surface plane of the bus bar and soldering may be effected from a second (see figure), opposite surface plane of the bus bar, with the formed by a conical bore (see figure 2) which is perpendicular or approximately perpendicular to the surface plane of the bus bar; the apex of the conical bore is oriented toward the first surface plane of the bus bar, and the conical bore terminates in a circular aperture (3) whose diameter is slightly greater than the diameter of the terminal lead (see figure).

Forming the aperture in the conical form will facilitate better solder joint of the terminal to the bus bar.

Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the bus bar of Adachi with the aperture is formed by a conical bore which is perpendicular or approximately perpendicular to the surface plane of the bus bar; the apex of the conical bore is oriented toward the first surface plane of the bus bar, and the conical bore terminates in a circular aperture whose diameter is slightly greater than the diameter of the terminal lead, as taught by Steigerwalt in order to have better solder connection.

Regarding the limitation cone angle being at least 30 degree, though the modified board of Adachi does not disclose the cone angle being at least 30 degree, Steigerwalt recites that conical bore is provided to receive extra solder to improve the soldered connection (column 1, line 25-30).

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Therefore, it would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to provide the structure of Adachi with the cone angle of the hole at least about 30 degree, in order to improve the solder connection.

Further, it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or working ranges involves only routine skill in the art. *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

Regarding claim 2, the modified structure of Lynch further discloses that the cone angle is between 50 degree and 90 degree as applied to claim 1 above.

Regarding claim 3, the modified structure of Adachi further discloses the terminal lead is part of a semiconductor device (see figure).

Regarding claim 4, the modified structure of Adachi further discloses the bus bar consist of metal (copper as applied to claim 1 above).

Regarding claim 5, the modified structure Adachi further discloses the bus bar is made of copper as applied to claim 1 above.

Response to Arguments

5. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Linnell in figure 4 discloses a structure with a through hole (41) in a metallization layer (50) with a conical shape for a better solder (22) connection.

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ishwar (I. B.) Patel whose telephone number is (571) 272 1933. The examiner can normally be reached on M-F (8:30 - 5:00).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on (571) 272 1984. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ibp
December 18, 2008

/Ishwar (I. B.) Patel/
Primary Examiner, Art Unit 2841